

B. AMENDMENTS TO THE CLAIMS

Claim 1. (currently amended)

A method of fabricating a microstructure in a sealed cavity comprising the steps of:

providing a substrate having a substantially planar support surface;

depositing a first layer of sacrificial material over said planar support surface;

depositing an etchable layer of structural material over said first layer of sacrificial material;

forming a microstructure on said support surface by etching said layer of ~~composed of a~~
~~structural material on said substrate~~, said microstructure contacting being secured to said
~~substrate at least at an anchor point by a first layer of sacrificial material~~;

depositing forming a second layer of sacrificial material over ~~on~~ said microstructure;

depositing a forming a metal cap layer over ~~on~~ said second layer of sacrificial material, said cap
layer extending from points on said support surface, whereby said cap layer and said support
surface define a capsule about an interior region forming a sealed cavity containing said
microstructure and said first and second sacrificial layers;

forming one or more holes in said ~~metal cap layer~~, ~~said holes being restricted to an area of said~~
~~metal cap not directly above said microstructure~~;

introducing a dry oxygen plasma etchant into said interior region sealed cavity through said one
or more holes ~~using a barrel etcher~~,

wherein said structural material and said sacrificial material is chosen to have having a high etch
rate differential with respect to said structural material, so that said dry oxygen plasma etchant
removes, such that said first and second sacrificial layers material is removed while leaving said
microstructure and said substrate substantially intact, thereby releasing said microstructure as a
movable structure secured at said anchor point to said substrate; and

sealing said one or more holes in said ~~metal cap layer~~ with a seal layer, thereby forming a sealed
cavity that encapsulates said movable microstructure, said sealed cavity being defined by said
seal layer and said planar support surface.

Claim 2 (Cancelled)

Claim 3 (original) The method of claim 1 wherein said substrate is a silicon wafer having a layer of silicon nitride deposited thereon.

Claim 4 (currently amended)

The method of claim 12 wherein said etchant is oxygen plasma, said sacrificial material is photoresist and wherein said structural material is aluminum.

Claims 5-20 (cancelled)

Claim 21. (currently amended) The method of claim 1 wherein said etchant has a high etch rate with respect to said sacrificial material and a low etch rate with respect to said structural material and with respect to the materials forming said substrate and said cap layer.

Claim 22. (Original) The method of claim 21 wherein said structural material is resistant to said etchant.

Claim 23. (New) The method of claim 1, wherein said dry plasma etchant comprises oxygen plasma.

Claim 24. (New) The method of claim 1, wherein the step of introducing said dry plasma etchant into said interior region through said one or more holes is performed using a barrel etcher.

Claim 25. (New) The method of claim 1, wherein said substrate includes CMOS circuitry defined within said substrate between said support surface and said base surface.

Claim 26. (New) The method of claim 1, wherein said one or more holes are

Claim 27. (New) An intermediate micromachined device, comprising:

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cont.
- A. a substrate having a substantially planar support surface on one side and a base surface on a side opposite said support surface, said planar support surface being characterized by a plane;
 - B. a first sacrificial layer deposited over said support surface;
 - C. a microstructure disposed at least in part above said plane and secured to said substrate at one or more points, said microstructure being formed by etching a structural layer deposited on said first sacrificial layer;
 - D. a second sacrificial layer deposited over said microstructure;
 - E. a cap layer extending from points on said planar support surface and deposited over said second sacrificial layer, said cap layer and said support surface defining a capsule about an interior region containing said microstructure and said first and second sacrificial layers;

wherein said cap layer is adapted to have one or more ports formed therethrough; and

wherein the materials forming said sacrificial layers and said structural layer are chosen so as to allow a dry plasma etchant, when introduced into said interior region through said one or more ports, to etch away said first and second sacrificial layers while leaving said microstructure substantially intact, thereby forming a cavity defined by said cap layer and said planar support surface, and releasing said microstructure as a movable suspended structure contained within said cavity.

Claim 28. (New) A device according to claim 27, wherein said microstructure comprises a MEMS (microelectromechanical system) device.

Claim 29. (New) A device according to claim 27, wherein at least a portion of said first

sacrificial layer is in contact with at least a portion of said second sacrificial layer.

Claim 30. (New) A device according to claim 27, further comprising at least one metal contact disposed on said support surface for connecting said microstructure to said support surface of said substrate.

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Claim 31. (New) A device according to claim 27, wherein said substrate is a CMOS structure with said support surface being a passivation layer, and includes CMOS circuit devices defined within said substrate between said support surface and said base surface.

Claim 32. (New) A device according to claim 27, wherein said substrate is a silicon wafer coated with a passivation layer.

Claim 33. (New) A micromachined assembly, comprising:

- A. a substrate having a substantially planar support surface characterized by a plane;
- B. a microstructure disposed at least in part above said plane and having at least one end secured to said substrate at an anchor point;
- C. a cap layer extending from points on said planar support surface, said cap layer and said support surface defining a capsule about an interior region containing said microstructure;
- D. a seal layer extending from points on said planar support surface, said seal layer being disposed over and contiguous said cap layer.